

REMARKS

Status of the claims:

With the above amendments, claims 1-4 have been amended. The amendments are non-narrowing in scope and no new matter has been added by way of the above amendments. Entry of the amendments and reconsideration in light of the following remarks is respectfully requested.

Objections under 37 C.F.R. § 1.75(c)

The Examiner has objected to claim 3 under 37 C.F.R. § 1.75(c) for failing to further limit claim 1. The Examiner asserts that the rubber in claim 1 "must be upstream from the thermoplastic" (see Office Action of December 26, 2001, page 2) and thus claim 3 fails to further limit claim 1. Applicants traverse for the following reasons. In claim 1, the feeding position of the molten rubber is not necessarily at an upstream position (*i.e.*, it may be downstream) of the main extruder relative to the feeding position of the thermoplastic resin. Or in other words, in claim 1, the resin may be present before the introduction of the rubber into the extruder or the resin may be introduced after the introduction of the rubber. Claim 3 recites a preferable position wherein the resin is introduced after the rubber. Accordingly, Applicants submit that claim 3 does further limit claim 1. Withdrawal of the objection is warranted and respectfully requested.

Rejections under 35 U.S.C. § 112, second paragraph

Claims 1-5 have been rejected under 35 U.S.C. § 112, second paragraph as being indefinite. The Examiner asserts that the claim language "a rubber's viscosity" in claim 2, "fed at a downstream position of the extruder" in claim 3, and "block-like" in claim 4 is indefinite. Claim 5 is not mentioned in the outstanding Office Action. Applicants respectfully traverse these rejections.

The Examiner asserts that the phrase "a rubber's viscosity" in claim 2 is indefinite as it suggests that there is more than one viscosity. Claim 2 has been amended to recite "the rubber's viscosity". It is believed that with this amendment that the rejection has been obviated.

Moreover, regarding claim 2, the Examiner says: that "it is not clear what the diameter recited in claim 2 has to do with the viscosity since viscosity should be independent of the nozzle for extrusion." Applicants contend that melt viscosity is influenced by many factors such as temperature, shear stress, retentive times, etc. Accordingly, the recitations of the diameter and the length of the nozzle are usually necessary. Attached to this response please find a copy of JIS K7199 wherein the relationships among all of these parameters (including the diameter and the length of the nozzle) are explained. Withdrawal of the rejection with respect to claim 2 is respectfully requested.

The Examiner asserts that the phrase "fed at a downstream position of the extruder" in claim 3 is indefinite. Claims 1 and 3 have been amended to clearly recite the extruder to which claim 3 refers. It is believed that with these amendments that the rejection has been obviated. Withdrawal of the rejection with respect to claim 3 is respectfully requested.

The Examiner asserts that the phrase "block-like" in claim 4 is indefinite as being subjective. Accordingly, claim 4 has been amended to recite, "wherein the solid rubber has a shape of bale or block". It is believed that the amended language is no longer subjective. Withdrawal of the rejection with respect to claim 4 is respectfully requested.

Rejections under 35 U.S.C. § 102

The Examiner has rejected claims 1-5 under 35 U.S.C. § 102(e) as being anticipated by Guntherberg '399 (U.S. Patent No. 6,165,399). This rejection is traversed for the following reasons.

The Examiner asserts that the melt disclosed in Guntherberg '399 is fed into an extruder. Applicants disagree. In column 11, lines 9-14, Guntherberg '399 recites that a dewatered elastomer component A' is first homogenized and plasticated alone, and that the melt of the polymer B etc. are introduced into a viscous melt of the elastomer of component A'. Guntherberg '399 does not teach, disclose or suggest the feeding of a molten rubber into an

extruder. Accordingly, Guntherberg '399 can not anticipate the instant invention because Guntherberg '399 fails to disclose the elements of the present invention. The rejection is inapposite. Withdrawal of the rejection is warranted and respectfully requested.

Rejections under 35 U.S.C. § 103

The Examiner has rejected claims 1-5 under 35 U.S.C. § 103(a) as being unpatentable over Guntherberg '399 in view of Furuta '765 (U.S. Patent No. 5,997,765). This rejection is traversed for the following reasons.

Present Invention

The present invention discloses a method of producing a composition comprising a thermoplastic resin and a rubber. This method comprises taking a solid rubber, turning this rubber into a molten rubber by a rubber kneading machine, and then feeding the molten rubber into an extruder. The molten rubber is then melt-kneaded with a thermoplastic resin in the extruder.

Disclosure of Guntherberg '399

Guntherberg '399 discloses a process for preparing thermoplastics or polymer blends comprising (A) from 5 to 95% of a water-moist elastomer component containing up to 60% of residual

water, (B) from 5 to 95% of a thermoplastic polymer, (C) from 0 to 95% of a further polymer, and (D) from 0 to 70% of additives. The process comprises mixing the components A to D in an extruder with mechanical de-watering of component A. The extruder has at least two rotating screws and, in the conveying direction, is essentially composed of a metering section into which component A is fed. The extruder also has a squeeze section which serves for dewatering component A and contains a retarding element and an associated dewatering orifice which is present upstream of the retarding element by a distance corresponding to at least one screw diameter. The extruder also has a feed section in which the thermoplastic polymer B is introduced as a melt into the extruder, a plastication section with mixing or kneading elements, a devolatilization section with an orifice where any remaining water is removed as steam, and a discharge zone.

Guntherberg '399 does not teach, disclose or suggest the feeding of a molten rubber into an extruder.

Disclosure of Furuta '765

Furuta '765 discloses a liquid crystal polyester resin composition comprising a liquid crystal polyester (A) in a continuous phase and a rubber having a functional group reactive with the liquid crystal polyester (B) in a dispersed phase.

Furuta '765 does not teach, disclose or suggest the feeding of a molten rubber into an extruder.

Removal of of Guntherberg '399 in view Furuta '765

Neither Guntherberg '399 nor Furuta '765 teach, disclose or suggest the feeding of a molten rubber into an extruder.

Accordingly, Applicants assert that the Examiner has failed to make out a *prima facie* case of obviousness with regard to the 35 USC §103(a) rejection over Guntherberg '399 in view of Furuta '765. Three criteria must be met to make out a *prima facie* case of obviousness.

- 1) There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.
- 2) There must be a reasonable expectation of success.
- 3) The prior art reference (or references when combined) must teach or suggest all the claim limitations.

See MPEP §2142 and *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991). The Applicants assert that none of these elements are met. However, in particular, the Examiner has failed to meet the third element to make a *prima facie* obviousness rejection. Neither Guntherberg '399 nor Furuta '765 teach, disclose or suggest the feeding of a molten rubber into an extruder. For this reason

alone, the rejection is inapposite. Withdrawal of the rejection is warranted and respectfully requested.

Conclusion

The Examiner is respectfully requested to enter this Reply After Final in that it raises no new issues. Alternatively, the Examiner is respectfully requested to enter this Reply After Final in that it places the application in better form for Appeal.

With the above remarks and amendments, it is believed that the claims, as they now stand, define patentable subject matter such that a passage of the instant invention to allowance is warranted. A Notice to that effect is earnestly solicited.

If any questions remain regarding the above matters, please contact Applicant's representative, T. Benjamin Schroeder (Reg. No. 50,990), in the Washington metropolitan area at the phone number listed below.

Pursuant to 37 C.F.R. § 1.17 and 1.136(a), Applicants respectfully petition a three (3) month extension of time for filing a response in connection with the present application. The required fee of \$920.00 is attached hereto.


If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees

required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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ATTACHMENTS

1. Version Showing Changes Made
2. JIS K7199 document

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims have been amended as follows.

1. (Twice Amended) A method of producing a composition comprising a thermoplastic resin and a rubber, wherein a solid rubber is turned into a molten rubber by a rubber kneading machine and the molten rubber is fed into an extruder from the rubber kneading machine, and the molten rubber is melt-kneaded with the thermoplastic resin in the extruder.

2. (Amended) The method of producing a composition according to claim 1, wherein the rubber is molten:
at a temperature where [a] the rubber's viscosity on extrusion from a nozzle having a diameter of 0.5 mm and a length of 10 mm at a shear rate of 100 sec^{-1} is from 100 to 30000 poise; or
at a temperature where a melt index of the rubber under a load of 2.16 kfg is from 2 to 20 g/10 minutes.

3. (Twice Amended) The method of producing a composition according to claim 1, wherein the thermoplastic resin is fed at a downstream position of the extruder relative to the position at which the molten rubber is fed.

4. (Amended) The method of producing a composition according to claim 1, wherein [a bale- or block-like rubber is used as] the solid rubber has a shape of bale or block.